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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/519,075

12/23/2004

Kenji Nunome

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9629 7590 02/07/2007  
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EXAMINER

QUARTERMAN, KEVIN J

ART UNIT

PAPER NUMBER

2879

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/07/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/519,075

Applicant(s)

NUNOME ET AL.

Examiner

Kevin Quarterman

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1204; 1105</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).
3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The following title is suggested: --SPARK PLUG WITH ELECTRODE INCLUDING PRECIOUS METAL--.

***Drawings***

5. Figures 9 and 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference character "4S" shown in Figure 1 is not mentioned in the description. It appears to the Examiner that the reference character should be "42S" instead.

7. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

Art Unit: 2879

notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-6 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibata (US 2002/0067111).

10. Regarding independent claim 1, Figure 1 of Shibata shows a spark plug comprising a center electrode (30); and a side electrode (40) located on at least one side of the center electrode so that a spark discharge gap is formed between the center electrode and the side electrode, wherein at least one of the center electrode and the side electrode includes a precious metal member (50, 60) facing the spark discharge gap; and the precious metal member contains Ir as a main component, 0.3 mass% to 43 mass% of Rh, 5.2 mass% to 41 mass% of Ru, and 0.4 mass% to 19 mass% of Ni (pg. 6, ¶ [0092]).

11. Regarding claim 2, Shibata discloses the precious metal contains Ir as a main component, 0.5 mass% to 36 mass% of Rh, 5.2 mass% to 36 mass% of Ru, and 0.4 mass% to 11 mass% of Ni (pg. 6, ¶ [0092]).

Art Unit: 2879

12. Regarding claim 3, Shibata discloses the precious metal contains Ir as a main component, 1.0 mass% to 31 mass% of Rh, 5.2 mass% to 31 mass% of Ru, and 0.4 mass% to 7 mass% of Ni (pg. 6, ¶ [0092]).

13. Regarding claim 4, Shibata discloses the precious metal contains Ir as a main component, 6.5 mass% to 22 mass% of Rh, 5.2 mass% to 24 mass% of Ru, and 0.4 mass% to 3.5 mass% of Ni (pg. 6, ¶ [0092]).

14. Regarding claim 5, Shibata discloses the precious metal member containing 8 mass% to 20 mass% of Ru (pg. 6, ¶ [0092]).

15. Regarding claim 6, Shibata discloses the precious metal member containing at least one of Pt, Pd, Re, and Os (pg. 6, ¶ [0092]).

16. Regarding independent claim 9, Figure 1 of Shibata shows a spark plug comprising a center electrode (30); and a side electrode (40) located on at least one side of the center electrode so that a spark discharge gap is formed between the center electrode and the side electrode, wherein at least one of the center electrode and the side electrode includes a precious metal member (50, 60) facing the spark discharge gap; and the precious metal member contains Ir as a main component and Rh, Ni, and Ru in a range of from 8 mass% to 20 mass% (pg. 6, ¶ [0092]).

17. Regarding claim 10, Shibata discloses a content of Ni contained in the precious metal member being not smaller than 0.4 mass% and smaller than a content of Ru contained in the precious metal member (pg. 6, ¶ [0092]).

Art Unit: 2879

18. Regarding claim 11, Shibata discloses a content of Rh contained in the precious metal member being not smaller than 0.3 mass% and no larger than a content of Ru contained in the precious metal member (pg. 6, ¶ [0092]).

***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (US 2002/0067111) in view of Osamura (US 6,262,522).

22. Regarding claim 7, Shibata teaches the limitations of independent claim 1 discussed above but fails to exemplify the precious metal member containing an oxide

Art Unit: 2879

of an element selected from Sr, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ti, Zr, and Hf.

23. Osamura teaches that it is known in the art to provide the precious metal member of a spark plug with an oxide of an element selected from Sr, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ti, Zr, and Hf for improving the consumption resistance of the chip (col. 4, ln. 61-65).

24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the precious metal member of Shibata with the oxide taught by Osamura for suppressing oxidation abrasion of the precious metal member.

25. Regarding claim 8, Osamura discloses the precious metal member containing at least one of  $Y_2O_3$ ,  $La_2O_3$ ,  $ThO_2$ , and  $ZrO_2$  (col. 4, ln. 61-65).

### ***Conclusion***

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hori (US 2003/0155849) discloses a spark plug with noble metallic chip. Matsutani (US 6,121,719) discloses a spark plug with multi-layered electrode. Segawa (US 6,710,523) discloses a spark plug for internal combustion engine. Hori (US 6,750,598) discloses a spark plug with noble metallic chip. Kanao (US 6,831,397) discloses a spark plug with noble metal chip.



**Contact Information**

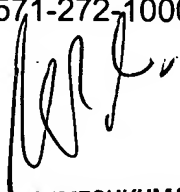
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin Quarterman  
Examiner  
Art Unit 2879

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1 February 2007

  
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